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Innovative's Electronic Resource Management as catalyst for change at Glasgow University Library.

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Glasgow University Library (GUL), in common with almost all other academic libraries, has experienced an increasing shift from print to electronic journals over the last ten years. Reasons for the move towards the electronic format in general have been well documented; multiple concurrent users, access 24/7 from any PC on

campus (and in most cases secure access off campus as well), early publication, convenient download possibilities and feature rich options such as search capability, hyperlinking, and multimedia features. The resulting popularity of electronic journals has led to a huge increase in the number of e-journal titles available, which has in turn brought about an ever increasing complexity in this area. GUL's strategic policy of moving towards e-only journal subscriptions, where viable, has resulted in an enormous rise in the number of electronic titles which we make available to our users (approximately 24,000 unique titles in December 2005), and this, together with the increased intricacy of subscription models, bundles and national deals, meant that by late 2002 it was becoming increasingly necessary for us to either find or develop in-house a tool to manage our electronic journals. We were by no means alone in this conclusion: Tim Jewell's 2001 paper¹ describes how some libraries had already begun to develop local systems in order to manage their electronic resources, and around that time library management systems began to develop electronic resource management modules to extend their functionality, and to provide some solutions to the problems outlined above.

As background, the University of Glasgow, in Scotland, is a large (in UK terms), well established, broadly based, research focussed university. It was founded in 1451, and today has about 20,000 undergraduate and postgraduate students, with teaching and well-funded research taking place in almost all subject fields. The Library has about two million volumes (it could be argued that the number of volumes is becoming much less important in this electronic age, but it is still an indication of collection depth). Since 1995, our library management system has been Innovative Interfaces Inc.

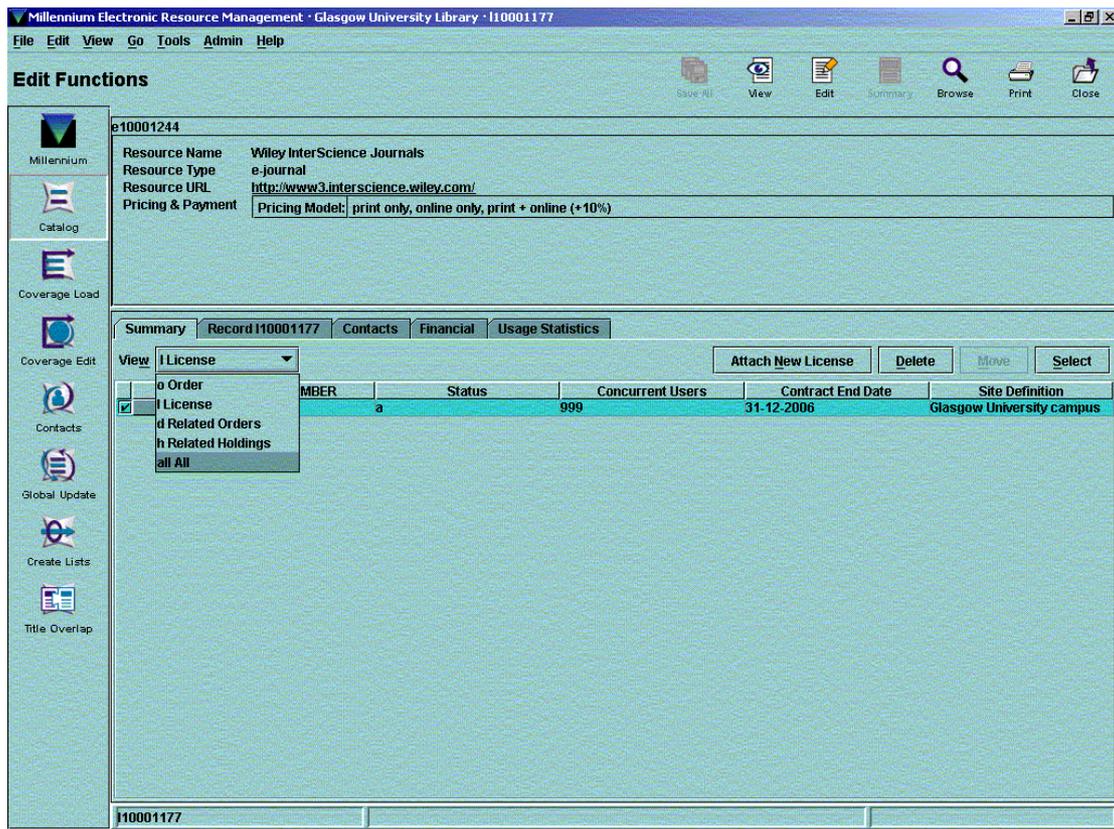
Innovative's Electronic Resource Management (ERM) module, one of the first in its field, has been designed to enable libraries to manage their electronic resources effectively, in particular, their increasingly large and diverse electronic journal collections. Innovative's web site² lists the goals of ERM as enabling libraries to perform the following:

- Manage licensing and purchasing details in a single interface;
- Provide additional fields for storage of relevant data for staff, this may include: URL, username/password, IP addresses, contact information, etc;
- For patrons, this may include: printing permissions, interlibrary loan availability, etc;
- Display information about electronic resources in the Web OPAC for public services staff and patrons;
- Define relationships between aggregators or publishers and the resources they provide;
- Manage payments and other financial and subscription details.

GUL was approached by Innovative in early 2003 and, having already recognised the need for an e-resource management tool, enthusiastically signed up to the ERM development group in March of that year. The group included the University of Washington, Ohio State University, the University of Western Australia and Washington State University. As a development partner GUL was able to shape the early development of the module, helping to ensure that the product would not only achieve the initial objectives set out by Innovative but would also serve the particular

needs of our site. Diane Grover and Ted Fons' paper "The Innovative Electronic Resource Management System: A Development Partnership"³ describes in detail the development of Innovative's ERM module, outlining the early evolution of the basic record structure and the processes by which the partner libraries contributed to the development of the product. The resource record, containing general data relating to the online resource, is created at the level of the provider and represents a new Innovative record type. Attached to the resource record is a licence record, another new record type. The licence record stores information relating to the licensing terms and conditions. An order record can be attached directly to the resource record, for payments made at resource level. Holdings records (check-in records with holdings information) and order records, which are attached to a bibliographic record, can then be related or soft-linked across to the resource record. By relating a holdings record to the resource record, ERM creates a link between provider and title, and helps define the relationship between the two. See Figure 1 for a display of the ERM record structure summary.

FIGURE 1. ERM record summary



The implementation of ERM at Glasgow University Library has been an interesting process and one which has required both a great deal of decision making, in terms of further site specific customisation, and staff input, in terms of resource selection, information gathering, technical considerations and review and consideration of our user interface. However, the intention of this article is not to look at the process by which ERM was set up at GUL, but rather at ERM in the wider context, examining how it has acted as a catalyst and facilitator for further developments and enhancements in the area of e-journals at our site. Although there will be continuing reference to Innovative's ERM module, we recognise of course that most other library management systems have now developed, or are developing, their own modules, and most of what follows is not necessarily specific to the Innovative application.

One key component of ERM is the ability to define the relationship between the publisher or provider and the titles they provide. As mentioned above, ERM allows this link between provider and title level resource by linking a holdings record, which is attached to the bibliographic record, to the relevant publisher/provider level resource record (see Figure 2). In the early stages of our development partnership, it became apparent to us that in order to make full use of this feature, it would be necessary for us to have a file of e-journal holdings in a format compatible with ERM, either generated in-house or obtained from an external service provider. While some partner libraries had already begun work on gathering and compiling this data, for example, Ohio State University Libraries,⁴ we had not done this at GUL and felt that for us, receiving data from a service provider was the best approach. Having investigated the various options available, we made the decision to subscribe to the Serials Solutions MARC record service in April 2004. After the initial, fairly lengthy, gathering and input of data as part of the Serials Solutions set up process, we were able to receive an ERM compatible file of our electronic holdings data which could be used to create links within ERM between our resource record and title-level resources, thus providing us for the first time with clearly defined relationships between a provider and an e-journal title.

FIGURE 2. Related holdings

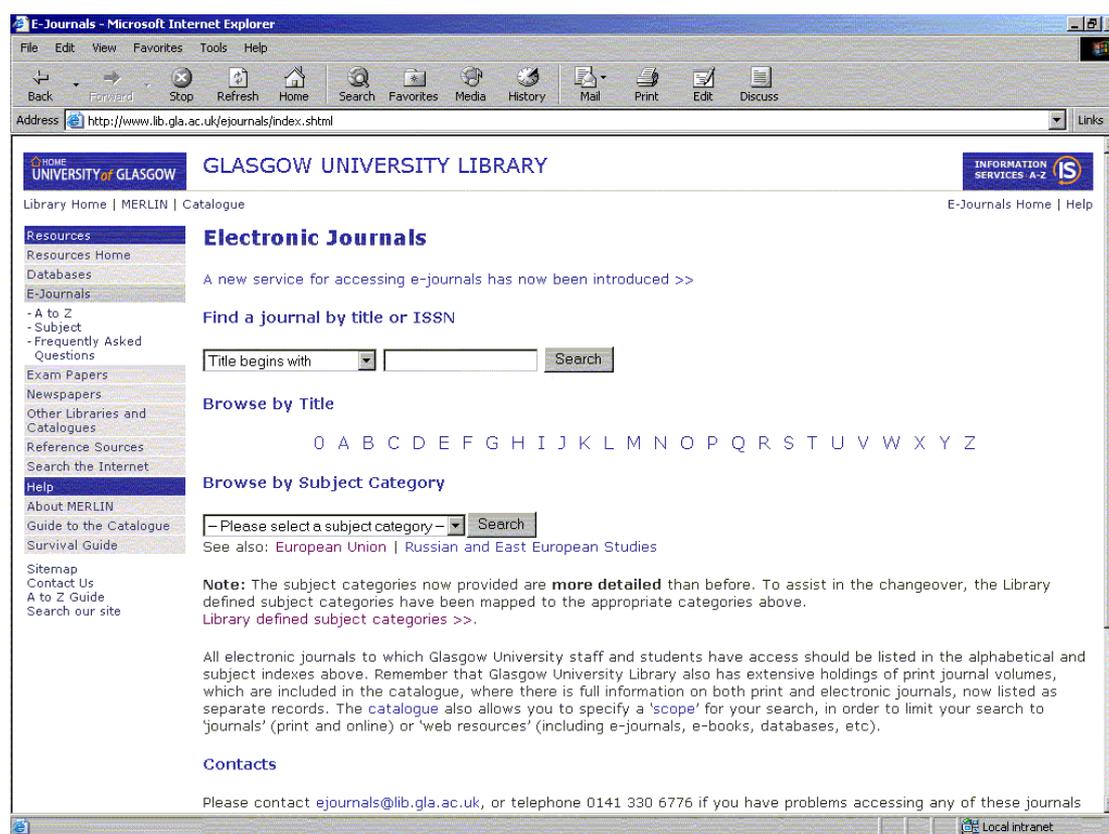
The screenshot shows the Millennium Electronic Resource Management interface for Glasgow University Library. The main window displays 'Edit Functions' for resource 'e10001244', identified as 'Wiley InterScience Journals'. Below this, there are tabs for 'Summary', 'Contacts', 'Financial', and 'Usage Statistics'. The 'Summary' tab is active, showing a 'View' dropdown set to 'h Related Holdings'. A table lists 23 related holdings, each with a checkbox, a record number, a title, and a date range. The first record is checked. At the bottom right, a status bar indicates '475 Holdings'.

#	RECORD NUMBER	TITLE	LIB. HAS
<input checked="" type="checkbox"/>	c1345321	About campus	(01 Jan. 1997)-
<input type="checkbox"/>	c1345333	Acta biotechnologica	(01 Jan. 2001)- (31 Dec. 2003)
<input type="checkbox"/>	c134254x	Acta hydrochimica et hydrobiologica	(01 Jan. 1998)-
<input type="checkbox"/>	c134349x	Acta polymerica	(01 Jan. 1998)- (31 Dec. 1999)
<input type="checkbox"/>	c1345345	Advanced engineering materials	(01 Jan. 1999)-
<input type="checkbox"/>	c1345795	Advanced functional materials	(02 Jan. 2001)-
<input type="checkbox"/>	c1345394	Advances in polymer technology	(01 Jan. 1996)-
<input type="checkbox"/>	c1343671	Advanced materials for optics and electronics	(01 Jan. 1996)- (31 Dec. 2000)
<input type="checkbox"/>	c1343750	Advanced materials	(01 Jan. 1998)-
<input type="checkbox"/>	c1345801	Advanced synthesis & catalysis	(01 Jan. 2001)-
<input type="checkbox"/>	c1345382	Aggressive behavior	(01 Jan. 1997)-
<input type="checkbox"/>	c1343762	Agribusiness	(01 Jan. 1997)-
<input type="checkbox"/>	c1345758	AIChE journal	(01 Jan. 1998)-
<input type="checkbox"/>	c1346349	Alternatives to the high cost of litigation	
<input type="checkbox"/>	c1342952	American journal of physical anthropology	(01 Jan. 1997)-
<input type="checkbox"/>	c1343774	American journal of human biology	(01 Jan. 1997)-
<input type="checkbox"/>	c1345400	American journal of industrial medicine	(01 Jan. 1997)-
<input type="checkbox"/>	c1345412	American journal of primatology	(01 Jan. 1997)-
<input type="checkbox"/>	c1345485	American journal of hematology	(01 Jan. 1997)-
<input type="checkbox"/>	c1345497	American journal of medical genetics	(01 Jan. 1997)- (31 Dec. 2002)
<input type="checkbox"/>	c1346441	American journal of medical genetics.	(01 Jan. 2003)-
<input type="checkbox"/>	c1346453	American journal of medical genetics.	(01 Jan. 2003)-
<input type="checkbox"/>	c1346465	American journal of medical genetics.	(02 15 2003)-

While there were other factors involved in our decision to subscribe to the Serials Solutions MARC record service, particularly the level of staff time spent on cataloguing our increasing number of e-journals, and concerns over the amount of information displayed to end users with our then-current combined print and online catalogue records, the requirements of ERM galvanized our decision to subscribe. ERM can therefore be seen as a catalyst for the changes and enhancements to our e-journals service which have resulted from our Serials Solutions subscription. Subscription to the MARC record service obviously brought about significant changes to our serials cataloguing processes. Where we previously created combined print and electronic catalogue records, our records are now separated into print and online formats, a significant change for library staff and patrons.

With the MARC service, we were also given the opportunity to use the Serials Solutions A-Z web portal (see Figure 3), suitably customised to GUL look-and-feel specifications. We did have an e-journals A-Z and subject list on our web pages prior to the Serials Solutions subscription, but this was manually maintained, thus requiring considerable input of staff time, and it offered only very basic lists of titles, linking back to the appropriate catalogue record. Adoption of the A-Z portal again represented a significant change to our current service, offering additional search features to our users as well as far more detailed subject browsing, direct linking to the electronic resource, an indication of electronic holdings available to us from different providers, and of course, more frequent updates than our manual system could possibly allow. Interestingly, the implementation of Serials Solutions increased the number of e-journals in the A-Z list from about 11,000 to about 19,000. We put considerable effort into our locally maintained alphabetical list, and believed it to be more comprehensive than many other such library lists, but these figures indicate the losing battle inherent in trying to keep up with rapid e-journal changes locally.

FIGURE 3. A-Z E-journal Web Page display at GUL



Another key feature of ERM is its ability to create a centralised store of general data relevant to the resource. General information which can be stored in the resource record includes resource type and format, URL of the resource, pricing and payment information and information relating to usage statistics and resource administration (see Figure 4). This central store of data, information relating to administration of the resource in particular, together with our newly defined database of provider/resource relationships, and accurate and up-to-date holdings information, have also led to enhancements in the area of full-text linking at GUL. While we had long recognised the importance of providing full-text links from within subscribed bibliographic abstracting and indexing databases, the practicalities of creating and maintaining full-text links for such a large collection of electronic titles, with no comprehensive and up-to-date holdings information, had made this a time consuming, inefficient and

often out of date area of our e-journals service. However, we are now able to send regular and up to date files of our holdings data to some of our subscribed database providers, such as Web of Knowledge and Ovid, in order to create and maintain accurate full-text links to our e-journals holdings. We are also able to record and monitor this process by storing information relating to full-text linking in the provider's ERM resource record. For those providers who do not yet have the functionality to update their full-text linking automatically by uploading a holdings file, we now have the information to hand in order to manually update the links.

FIGURE 4. Resource record

The screenshot shows the Millennium Electronic Resource Management (ERM) interface for Glasgow University Library. The window title is 'Millennium Electronic Resource Management · Glasgow University Library · e10001244'. The interface includes a menu bar (File, Edit, View, Go, Tools, Admin, Help) and a toolbar with icons for Insert, Save, View, Edit, Summary, Browse, Print, and Close. A sidebar on the left contains navigation icons for Millennium, Catalog, Coverage Load, Coverage Edit, Contacts, Global Update, Create Lists, and Title Overlap. The main content area displays the resource record for 'e10001244', which was last updated on 06-12-2005 and created on 13-04-2004, with 16 revisions. The record is organized into several sections: Rights, Suppress, Resource Codes, Resource Status, Resource Name, Access Info, Administration, and Usage Statistics. The 'Rights' section includes fields for Rights Type (I LICENSED), Suppress (y YES), Package Type (c COMPLETE), and Termination Date (-). The 'Resource Codes' section lists four codes, all marked as 'NOT CHECKED'. The 'Resource Name' section identifies the resource as 'Wiley InterScience Journals' with a resource type of 'e-journal' and a format of 'PDF,HTML'. The 'Administration' section provides login details for the Glasgow library, including a username of 'Glasgow***', a password of 'password***', and an administrator named 'Laura Galloway'. The 'Usage Statistics' section shows the same login details and a URL for the resource. A 'Notes' field at the bottom indicates that the resource is 'COUNTER JR 1 compliant (Enhanced licence only) from Dec 2004' and provides a link to download an XLS file for the Journal Report 1.

e10001244		Last Updated: 06-12-2005		Created: 13-04-2004		Revisions: 16	
Rights Type	I LICENSED	Package Type	c COMPLETE	Termination Date	- -	Access Provider	wile John Wiley & Sons Ltd
Suppress	y YES	Trial Begin Date	- -	Publisher	wile John Wiley & Sons Ltd	Copyright Holder	wile John Wiley & Sons Ltd
Resource Code 1	- NOT CHECKED	Trial End Date	- -	Registration Date	31-12-2006	Data Provider	ser Serials Solutions
Resource Code 2	- NOT CHECKED	Renewal Date	31-12-2006	Activation Date	- -	Consortium	none
Resource Code 3	- NOT CHECKED	Registration Date	- -				
Resource Code 4	- NOT CHECKED	Activation Date	- -				
Resource Status	a AVAILABLE						
Resource Name	Wiley InterScience Journals						
Resource Type	e-journal						
Resource Format	PDF,HTML						
Resource URL	http://www3.interscience.wiley.com/						
Local Contact	ejournals.databases@lib.gla.ac.uk						
Pricing & Payment	Pricing Model: print only, online only, print + online (+10%)						
Access Info.	Gateway: Publisher carries out secondary IP check on end user						
Hardware/Software	Adobe Acrobat;Web browser						
Resource ID	Wiley InterScience Journals						
Administration	Username:	Glasgow***					
	Password:	password***					
	Administrator:	Laura Galloway					
	Administration URL:	http://www3.interscience.wiley.com/cgi-bin/custnavlogin?TPL=customer-admin.customer					
Usage Statistics	Username:	Glasgow***					
	Password:	password***					
	URL:	http://www3.interscience.wiley.com/cgi-bin/custnavlogin?TPL=customer-admin.customer					
	Notes:	COUNTER JR 1 compliant (Enhanced licence only) from Dec 2004					
		Journal Report 1 - download XLS file					

Full-text linking in the way just described is really only an interim solution, and, like many other libraries, we are in the process of extending our use of our OpenURL resolver, in our case Innovative's WebBridge product. At this time this is an obvious

area for development and, once again, the implementation of ERM at our site has been able to facilitate this process. Having a central store of information relating to the administrative areas of a provider's site has meant that much of the information required for the set up of our OpenURL resolver has been easily accessible to those library staff involved in the process.

ERM's licence record allows the library to record details of the licence agreement relating to a particular resource (see Figure 5). Our experience of the ERM development process suggested that the different development sites may have decided to focus on licensing terms and conditions to differing degrees, making site specific decisions on which of the many licence record fields to use on a regular basis. At GUL, we made the decision to focus on such fields as archival provisions, number of concurrent users, authentication method, remote access for authorized users and terms of use. Prior to implementation of ERM, our signed licence agreements were filed, often in more than one physical location depending on the resource, and would often only be referred to again when a particular query or issue arose. The inclusion of the licence record in ERM has stimulated at our site a greater awareness of licensing issues, requiring us to study the terms of our licences much more closely in order to record the relevant data. It has also led to a change in some of our licence agreement procedures in that we now retain, where available, a centrally stored electronic version of the agreement, allowing much easier access to the full document when required.

FIGURE 5. Licence record

The screenshot displays the Millennium Electronic Resource Management interface for Glasgow University Library. The main window shows the details for resource ID I10001244, which is 'Wiley InterScience Journals'. The resource type is 'e-journal' and the URL is 'http://www3.interscience.wiley.com/'. The pricing model is 'print only, online only, print + online (+10%)'. Below this, there are tabs for 'Summary', 'Record I10001177', 'Contacts', 'Financial', and 'Usage Statistics'. The 'Summary' tab is active, showing a table of licence details for record I10001177, last updated on 06-10-2005 and created on 13-04-2004. The table includes fields such as Confidentiality (NO), Auto Renew (NOT CHECKED), Status (ACTIVE), Type (SINGLE SITE), Breach Cure Per. (0), Perpetual Access (NOT CHECKED), Archival Provisions (YES), and Warranty (NOT CHECKED). It also lists various compliance and code checks. Below the table, there are sections for 'License Notes', 'Authentication Method', 'Site Definition', 'Authorized Users', 'Remote Access note', 'Terms of use (Patron)', 'Terms of use notes (Staff)', 'Terms of use (Staff)', and 'Tickler Log'. The interface includes a sidebar with navigation icons and a top menu bar with options like File, Edit, View, Go, Tools, Admin, and Help.

I10001177		Last Updated: 06-10-2005		Created: 13-04-2004		Revisions: 10	
Confidential	NO	Disability Compliance	- NOT CHECKED	License Code 3	- NONE	Concurrent Users	999
Auto Renew	- NOT CHECKED	Indemnification	- NOT CHECKED	Licensee Sign Date	28-02-2005	Licensor Sign Date	09-08-2005
Status	a ACTIVE	Law & Venue	a UNITED STATES	Contract Start Date	01-01-2005	Contract End Date	31-12-2006
Type	s SINGLE SITE	User Confidentiality	- NOT CHECKED	License Date 1	- -		
Breach Cure Per.	0	Suppression	y YES				
Perpetual Access	- NOT CHECKED	License Code 1	- NONE				
Archival Provisions	y YES	License Code 2	- NONE				
Warranty	- NOT CHECKED						

License Notes
Enhanced Access Licence (EAL) - Gives access to all titles; current year + all available back issues.
Direct on-campus access
Glasgow University campus
Students, Staff, Faculty, Walk-ins
Athens Registration/Password required
View, Download (limited); Print (single copy); Share for scholarly purposes
Remove or alter copyright notices (prohibited); Re-publish (prohibited); Commercial uses (refer to publisher for permission)
Backup copy full content; Use for the purpose of internal marketing, testing or training; Braille transcription
Document Delivery (authorised users only); Document Delivery (single copy); ILL (paper copy of electronic original);
ILL (single copy); Electronic reserve (authorised users only); Electronic reserve (temporary); Course pack (authorised users only);
Course pack (temporary)
Tickler Log
Licensee Sign \$20050310\$20050228

This increased scrutiny of licence agreements and central store of key licence information have thus far resulted in the introduction of one new library service and the development of some existing policies. More detailed and comprehensive examination of licence terms relating to authorised users revealed that the majority of our electronic resources allow access to walk-in users, an area which we had not previously investigated fully and on which we had until that point assumed the opposite to be the case. We have since set up a specified library terminal for walk-in use, with restricted access to those resources which do not yet allow use by walk-ins. We are able to regularly update our data on this subject by running regular review files of our licence record data. One example of an area of existing policy which our licence data have allowed us to develop further, is the use of articles from electronic sources for the purposes of interlibrary loan. Again, this is an area which had not

been reviewed fully and with closer scrutiny of licensing terms, relevant library staff are able to retrieve information on ILL lending by resource and use this information to more accurately inform decisions on lending. We envisage making greater use of this licensing data to initiate and enhance library developments in the future. As mentioned earlier, ERM's resource record includes a field for recording information relating to the usage statistics available from a particular provider. Once again, while the importance of recording and analysing usage statistics data for electronic journals had long been recognised and considerable input already expended, the inclusion of the usage statistics field in the resource record prompted a more comprehensive approach to gathering and seeking out this information and provided a central storage of information relating to usage at the resource level which is accessible to all relevant library staff..

Increased knowledge of subscribed titles and provider/title relationship, and centralised and more comprehensive store of usage statistics information, has aided our ability to record and analyse usage data and facilitated enhancements in this area. For example, we are able to record whether or not a resource provider is compliant with COUNTER (Counting Online Usage of Networked Electronic Resources – www.projectCounter.org) standards and use this information when selecting resource statistics for inclusion in SCONUL (Society of College, National & University Libraries – www.sconul.ac.uk) statistical questionnaires. (SCONUL compiles the standard annual library statistical data for higher education libraries in the UK.) We are also currently looking to undertake greater analysis of our statistics data, identifying key performance indicators across providers and are already finding the increased knowledge of subscribed titles and relationships to be of great advantage in

this process. And we are quite interested in future developments in this area, likely to enable direct downloading of usage statistics into ERM, allowing us to include acquisitions data and more easily produce cost-per-use reports.⁵

According to Rajesh Singh's review of branding in libraries, "The evolution of branding and recognition that the brand is a personification of the total offering of an organization or product and its value and contribution, to both the organization and the customer, makes it a key issue for library and information providing sector"⁶

While branding and library marketing of our subscribed electronic journals in general had received some attention prior to the implementation of ERM, ERM has once again helped to focus our attention. With increased knowledge of our holdings and more detailed and increasingly useful analysis of e-journal usage, we are gaining more awareness of the need for targeted promotion and marketing of the electronic resources we provide. The administrative information stored in ERM's resource records – URLs for publishers' administrative areas, log-ins, and details of the administrative features available – facilitates our use of the library marketing options which publishers and providers are increasingly making available to us. We can more quickly and easily access and retrieve promotional materials, training guides and user guides, and set up library branding of the provider site. We can keep up to date with developments and additional features made available to us, enabling us to get more out of our electronic subscriptions.

In summary, ERM can be viewed as a catalyst and facilitator of new developments and enhancements in the field of electronic journals at GUL. It played an important role in our decision to subscribe to an external service provider, Serials Solutions, for

our e-journal catalogue records, a decision which saw a significant change in serials cataloguing practice at our site. This decision also resulted in a major improvement of our e-journals web presence with the adoption of the Serials Solutions A-Z web portal. The resulting improvement in holdings information has, in turn, enabled an increasing ability to set up and maintain full-text links, an area which we are further developing with our use of Innovative's OpenURL resolver WebBridge. Inclusion of licensing terms in ERM initiated closer scrutiny of our licence terms and conditions, which has already lead to better service provision, and we foresee that this will continue in the future. ERM has aided improvements in our use of e-journal usage statistics, which together with our now clearly defined publisher/provider relationships, comprehensive holdings information and more efficient use of marketing options, enables us to make improvements in the value we obtain from our e-journal subscriptions. We look forward to many future developments in e-journals at our site, branching out from the introduction of ERM and the many related areas of interest which it has stimulated.

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